

Clean Cities EV Community Readiness

Florida Gold Coast Sustainable Community Planning
for Electric Vehicle and Charging Infrastructure

PI: Christine Heshmati, South Florida Regional Planning Council (SFRPC)

&

Richmond Electric Vehicle Initiative (REVi)

PI: Al Christopher, Virginia Department of Mines, Minerals and Energy (DMME)

Darren Stevenson
U.S. Department of Energy
National Energy Technology Laboratory

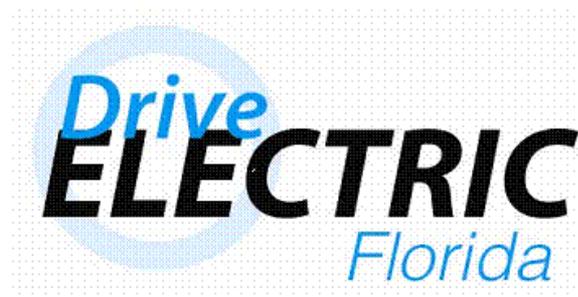
May 16, 2013

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Project ID: TI033

Florida Gold Coast Sustainable Community Planning for Electric Vehicle and Charging Infrastructure

PI: Christine Heshmati, South Florida Regional Planning Council (SFRPC)



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confidential or otherwise restricted information.

Project ID: TI033

- **TIMELINE**

- Start: October 2011
- End: June 2013
- 90% Complete

- **BUDGET**

- Total Project Funding:

\$500,000

- DOE: \$500,000
- Cost Share: \$0
- \$371,666 spent (74%)
(as of 3/22/13)

- **BARRIERS ADDRESSED**

- Availability of Alternative Fuel Vehicles & Electric Drive Vehicles
- Availability of Alternative Fuels and Electric Charging Infrastructure
- Consumer Reluctance to Purchase New Technologies
- Lack of Technical Experience with New Fuels and Vehicle Technologies

- **PARTNERS**

- Florida Power and Light (FPL)
- Hertz
- CALSTART
- The Curtis Group
- General Motors
- Local Governments & Stakeholders

Objectives:

- The objective of this project is to create a community-based electric vehicle (EV) infrastructure readiness plan and implement activities in anticipation of larger EV deployment of plug-in electric drive vehicles in the future.
- Plan for a future demonstration project along the US-1 mass transit corridor in Miami-Dade County

Project Supports VTP Deployment Goals:

- By 2020, to achieve a petroleum reduction of over 2.5 billion gallons per year through voluntary adoption of alternative fuel vehicles and infrastructure.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies.

Task 1: Project Management and Steering Committee

- Form working teams, confirm objectives and barriers, gain consensus across stakeholder groups, develop a detailed work plan & budget, and conduct oversight meetings.

Task 2: Government/Private Fleets EV Adoption

- Identify up to seven fleet operators (across the Region) who are good candidates for adoption of electric vehicles by assessing fleet type, size, and usage. Work with the fleet operators to compile available life-cycle cost information for fleet conversion and deployment. In addition, seek to identify incentives and possible sources of funding for fleets conversion. Support the development of area-specific public education and an outreach plan.

Task 3: Local Government Codes, Permitting and Policy Issues

- Analyze Florida's codes, local government policies, and regulatory barriers to EVSE deployment; analyze best practices for EV Supply Equipment (EVSE) codes and opportunities to standardize and streamline the processes; identify opportunities to include support for EV and EVSE deployment into regional planning documents; develop recommendations for governmental policy, code and permitting changes that support EV, EV use and EVSE deployment.

Task 4: Infrastructure Selection and Siting Criteria

- Conduct an analysis of current and forecasted consumer EV drivers, EVSE installation and the Region's automobile usage patterns; Identify phased quantities and concentrations of charging needs in the Region and a criteria scorecard for Level 2 and DC Fast Charging equipment for home and public charging; Include EVSE equipment selection criteria based on safety, standards and system integration; Identify existing and potential incentives and sources of funding; There will be a section devoted to EVSE installation and policy suggestions for multi-unit residential dwellings.

Task 5: Public Education, Outreach and Communications

- Develop communications, public relations and training plans for stakeholders in the Region. Wherever possible, plans will utilize low cost/no cost channels and tactics and leverage the existing communication channels of its public and private stakeholder members. Activities include working with each of the planning teams on their respective training plans and outreach materials.

Task 6: Miami-Dade US-1 Clean Transportation Corridor Project

- Identify the applicable codes, standards and approvals necessary for the future demonstration project, and recommendations for amendments; Identify EV and EVSE requirements, including quantities and locations, and systems integration opportunities; develop project-specific siting criteria; Identify opportunities for smart grid and renewal solar integration. The plan will include data collection and consumer survey program descriptions.

Task 7: Regional Electric Vehicle Infrastructure Readiness Plan

- Draft the Plan, which includes compiling work products and reports from task teams; Submitting draft plan to project partners and stakeholders for review; and submitting the final plan to DOE.

- **Year 1**

- Electric Vehicle Summit in Fall 2011
 - Kick-Off to foster awareness and interest in region
- Work teams organized to complete tasks
 - Individuals selected by committed public and private organizations
- Data gathering and best practices research
- Continued Project Outreach
 - Florida Energy Summit
 - Coalition Road Shows in Palm Beach and Miami-Dade Counties
 - Miami International Auto Show
 - Speaking engagements at university, local government, & planning chapter meetings

- **Year 2**

- Complete research
- Create informational snapshots of state, region, and counties
- Conduct fleet administrator outreach and case studies
- Develop fact sheets to highlight informational messages
- Begin implementation of communications and education plan
- Finalize report writing and Submit Report by March 31, 2013

TECHNICAL ACCOMPLISHMENTS

Florida Gold Coast Community Planning for EVs & Infrastructure



Volume 1

Summary of
Recommendations

Southeast Florida
Snapshot

Strategies



Volume 2

Master
Plan for
US-1
Corridor
Project

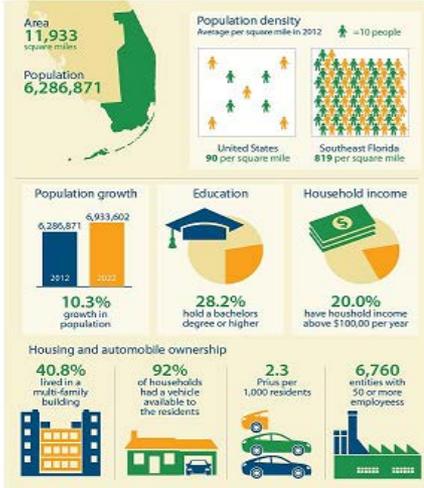
TECHNICAL ACCOMPLISHMENTS

Florida Gold Coast Community Planning for EVs & Infrastructure



Regional Snapshot | Southeast Florida

Demographics

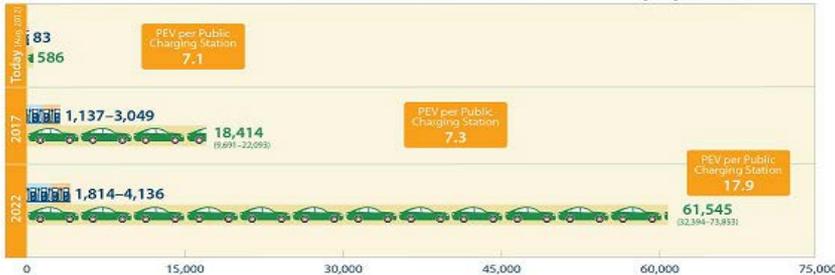


PEV and Public Charging Station Distribution

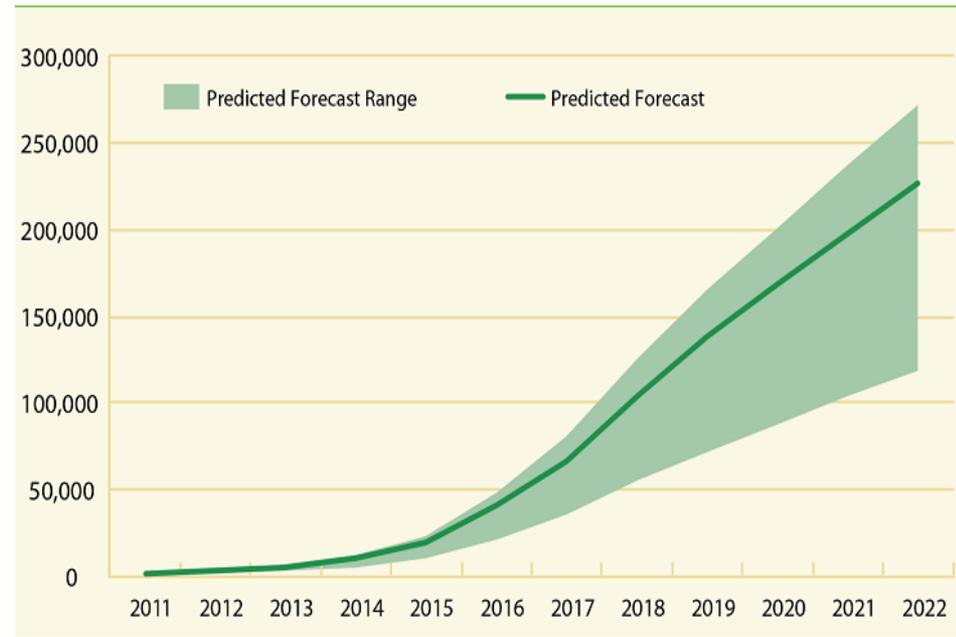


Southeast Florida PEV and EVSE Forecast

1,000 Public/Workplace Charging Stations = 5,000 PEVs



Florida Electric Vehicle Sales Forecast



TECHNICAL ACCOMPLISHMENTS

Florida Gold Coast Community Planning for EVs & Infrastructure



Fact Sheets

Overview of Benefits

- Saving Money
- Reducing Emissions

Selecting Infrastructure

- Charging Levels
- Equipment Features/Options

Myths and Facts about EVs

Fleet Conversions

Siting PEV Charging

- Visibility & Lighting
- Parking Space Size

Multi-Unit Charging

Charging Infrastructure

Workplace Charging

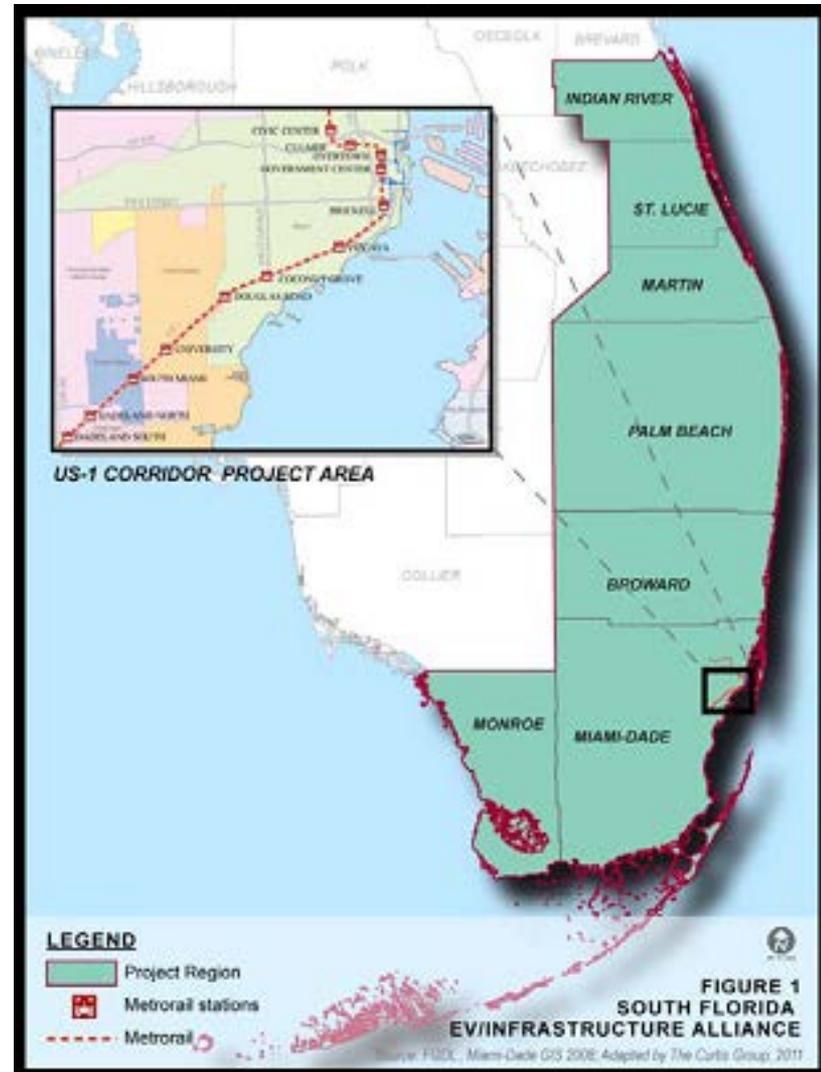
- Template for Model Zoning Code
- Fleet Manual Toolkit
 - *Fact Sheet: Building the Case – Fleet Conversion to Plug-in Electric Vehicles, Grant Team*
 - *Florida Gold Coast Sustainable Community Planning for Electric Vehicle Charging and Infrastructure Abstract*
 - *Southeast Florida Clean Cities Coalition Fact Sheet*
 - *Top 10 Things You Didn't Know About Electric Vehicles, U.S. Department of Energy*
 - *Hybrid and Plug-In Electric Vehicles, U.S. Department of Energy*
 - *Plug-IN Electric Vehicle Handbook, U.S. Department of Energy*
 - *Clean Cities Vehicle Technologies Program, U.S. Department of Energy*

TECHNICAL ACCOMPLISHMENTS

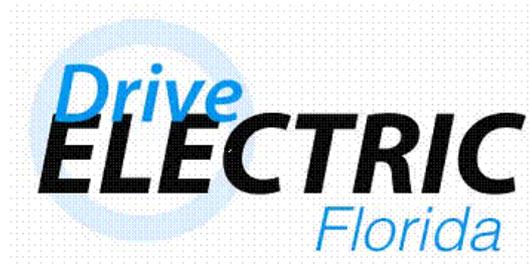
Florida Gold Coast Community Planning for EVs & Infrastructure



- Volume 2
 - Master Plan for US-1 Corridor Project



- Clean Cities Coalitions
 - Central Florida Clean Cities Coalition
- Other State Agencies/Institutions
 - Florida Department of Transportation, Districts 4 and 6



Local Governments/Agencies

- Monroe County
- Miami-Dade County
- Broward County
- Palm Beach County
- Martin County
- St. Lucie County
- Indian River County
- Broward Metropolitan Planning Org
- Cities
 - Boynton Beach
 - Coral Springs
 - Delray Beach
 - Miami Beach
 - Port St. Lucie
 - Stuart
 - West Miami
 - West Palm Beach

Florida Gold Coast Community Planning for EVs & Infrastructure has created a Community-based Electric Vehicle (EV) infrastructure Readiness Plan and is implementing activities in anticipation of larger EV deployment of plug-in electric drive vehicles in the future.

- **Relevance:** Supports VTP Goal of easing market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities
- **Approach:** Analyze Florida’s codes, local government policies, and regulatory barriers to EVSE deployment; analyze best practices for EV Supply Equipment (EVSE) codes and opportunities to standardize and streamline the processes; develop recommendations for governmental policy, code and permitting changes that support EV, EV use and EVSE deployment. Conduct an analysis of current and forecasted consumer EV drivers, EVSE installation and the Region’s automobile usage patterns; Identify existing and potential incentives and sources of funding.

“Getting Southeast Florida Plug-In Ready” provides recommendations for Public/Private infrastructure, ensuring supportive codes, Incentives, facilitating fleet adoption and plans for PEV Demonstration Along Mass Transit Corridor.

PROPOSED FUTURE WORK

Florida Gold Coast Community Planning for EVs & Infrastructure



- Efforts will continue as PEVs and PEV infrastructure expand throughout this densely-populated region of Florida with follow-up activities enhanced through additional funding
- Assist in implementation of the US-1 Corridor Master Plan, as funding becomes available

Richmond Electric Vehicle Initiative (REVi)



PI: Al Christopher, Virginia Department of Mines, Minerals and Energy (DMME)
Project Manager: Michael Phillips (VCC)

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Project ID: TI033

OVERVIEW

Richmond Electric Vehicle Initiative (REVi)



- **TIMELINE**

- Start: October 2011
- End: June 2013
- 90% Complete

- **BUDGET**

- Total Project Funding: **469,537**
 - DOE \$429,051
 - Cost Share: \$40,486
- Expenditure of DOE funds \$267,928 spent (62%) (as of 3/22/13)

- **BARRIERS ADDRESSED**

- Availability of Alternative Fuel Vehicles & Electric Drive Vehicles
- Availability of Alternative Fuels and Electric Charging Infrastructure
- Consumer Reluctance to Purchase New Technologies
- Lack of Technical Experience with New Fuels and Vehicle Technologies

- **PARTNERS**

- DMME
- Virginia Clean Cities
- Dominion Virginia Power
- J. Sargeant Reynolds Community College
- Richmond Regional Planning District Commission
- Sustainable Transportation Initiative of Richmond

Objectives:

- The primary objective of the Richmond Electric Vehicle Initiative (REVi) is to advance the Richmond Region as an attractive and sustainable market for electric vehicle technology. The activities of this planning project lays an educational and policy groundwork for electric vehicle (EV) adoption and charging infrastructure installation in the Richmond Region and the Commonwealth at large.

Project Supports VTP Deployment Goals:

- By 2020, to achieve a petroleum reduction of over 2.5 billion gallons per year through voluntary adoption of alternative fuel vehicles and infrastructure.
- To ease market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities/
- To provide technical and educational assistance to support local communities and partnerships that promote better understanding of the benefits of these new technologies.

Phase 1: Assessment Analysis and Planning

- Convene an Advisory Board and Workgroups
- Evaluate, revise and confirm the project plan and objectives
- Compile a list of necessary resources and make available those resources critical to the project plan
- List and prioritize data & resources needed for the project plan

Phase 2: Implementation

- Integrate EV policy & deployment scenarios in regional long range transportation plans
- Hold stakeholder meetings and public input sessions
- Update codes and policies as necessary and appropriate
- Develop adoption scenario maps
- Create best practices based on work completed
- Develop a plan to integrate local permit approvals to map/database of EVSE installations

Phase 2: Implementation (continued)

- Advise on state and local electric vehicle policies and incentives
- Create a local electric vehicle information hotline
- Support deployment partners with planning and technical questions
- Develop and disseminate materials for public release
- Develop marketing material and train and educate stakeholders and the general public
- Host formal conference/meeting to share plan and findings, provide information exchange and catalyze action in other areas of the Commonwealth

Phase 3: Program Management and Reporting

- Drafting and completion of the final plan; submission of plan draft to project partners and stakeholders for review and comment; revision of draft plan according to stakeholder input and feedback as necessary; report of final plan to DOE by March 31, 2013.



Jones cheers opening of new car-charging station

Richmond mayor, group tout benefits of green ventures

BY ROBERT ZULLO
Richmond Times-Dispatch

Mayor Dwight C. Jones helped officially open the first electric car charging station at the Richmond Omni on Wednesday following an event at the hotel that made the case for installing the stations as a sound business decision.

Organized by Virginia Clean Cities, a nonprofit partnership

between government and industry that promotes alternative fuel vehicles and infrastructure, the forum, called the "Business Case for Electric Vehicle Charging Stations," ended with Jones plugging in an electric Ford Focus in the hotel's garage.

Richmond, with about nine charging stations across the area, is among the launch markets for the all-electric Focus, and the city also received a \$460,000 federal grant that has funded the Richmond Electric Vehicle Initiative, a planning and education study organized by the city, state and Dominion Virginia

Power to promote electric vehicles, said Alleyn Harned, Virginia Clean Cities' executive director.

"Electric vehicles and infrastructure represent an opportunity for individuals and businesses to advance energy, economic and environmental security through reducing petroleum," Harned said in a news release.

Harned said the charger cost the hotel about \$2,000 and has since paid for itself in guests that seek the hotel out because of the opportunity to charge their cars.

"It turns out to have been a

great business decision," he said.

In a statement, Jones said the effort to increase the availability of charging stations fits with goals of the city's RVAgreen sustainability plan, including lower greenhouse gas emissions.

"The RVAgreen Plan supports electric vehicles and charging stations because they provide options that are more economically competitive and environmentally resilient than traditional vehicles," Jones said.

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Business

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Michael Phillips
Project manager for Virginia Clean Cities

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60 Seconds with . . . Michael Phillips

RICHMOND, Va. — Metro Business asked Michael Phillips, project manager for Virginia Clean Cities, about what businesses should consider when deciding between a hybrid or electric vehicle.

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BUSINESS RICHMOND TIMES-DISPATCH

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Public gets chance to test electric cars

Hunter Benes, a Chevrolet Volt owner, tried out a Nissan Leaf on Monday during the Richmond electric vehicle rally, a kickoff event for the Richmond Electric Vehicle Initiative project. The event at J. Sargent Reynolds Community College's Parham Road campus included more than half a dozen electric vehicles and drew 30 to 40 people. The event also featured a screening of the 2011 documentary "Revenge of the Electric Car," which chronicles the story of the renewed interest in electric car development. The U.S. Department of Energy has awarded a planning grant to Virginia Clean Cities and the state Department of Mines, Minerals and Energy for the \$430,000 Richmond Electric Vehicle Initiative to help make the region a market for electric vehicle technology. More than 50 organizations have joined in the effort.

Richmond electric vehicle rally See what happens when the public is invited to drive electric cars. At TimesDispatch.com, search: gallery.

All-electric Ford to set RIR pace

From staff and wire reports

Ford Motor Co. will become the first manufacturer in NASCAR history to supply an all-electric car as the pace car.

The new Focus Electric will lead the field at the April 28 Sprint Cup Series race at Richmond International Raceway.

"Ford research shows the majority of Americans would consider buying an electrified vehicle but do not yet understand the different technologies," Mark Fields, president of Ford's Americas division, said Monday.

"Highlighting the Focus Electric as a pace car is a fun way to educate consumers about the kinds of benefits our electrified vehicles deliver and show people our commitment to provide Ford customers the power of choice for leading fuel economy in the vehicle that best meets their needs."

The car will be unveiled to the public at the Virginia Capitol on April 25.

Ford also was the first to use a hybrid vehicle as pace car when the Fusion Hybrid led the field at Homestead in 2008. Ford in January unveiled its Fusion as its 2013 car to be used in NASCAR competition.

- **Year 1**

- Kick-off event for Advisory Board and Working Group members.
- Virginia Clean Cities and Clean Fuels Ohio collaborated on and released a report examining accessibility of EVs and EVSE for persons with disabilities.
- On-line video and print interview explaining why businesses should consider purchasing EVs.
- Release of *Site Design for Electric Vehicle Charging Stations Report*.

- **Year 2**

- Began the process of getting resolutions of support from each MPO/PDC governing bodies.
- Dominion (REVi partner) developed a report on workplace charging that will be submitted to DOE as part of REVi plan.
- Business Case for Electric Vehicle Charging Stations Forum and First Official Plug-in with Mayor Dwight Jones and EV Ride & Drive.

TECHNICAL ACCOMPLISHMENTS

Richmond Electric Vehicle Initiative (REVi)

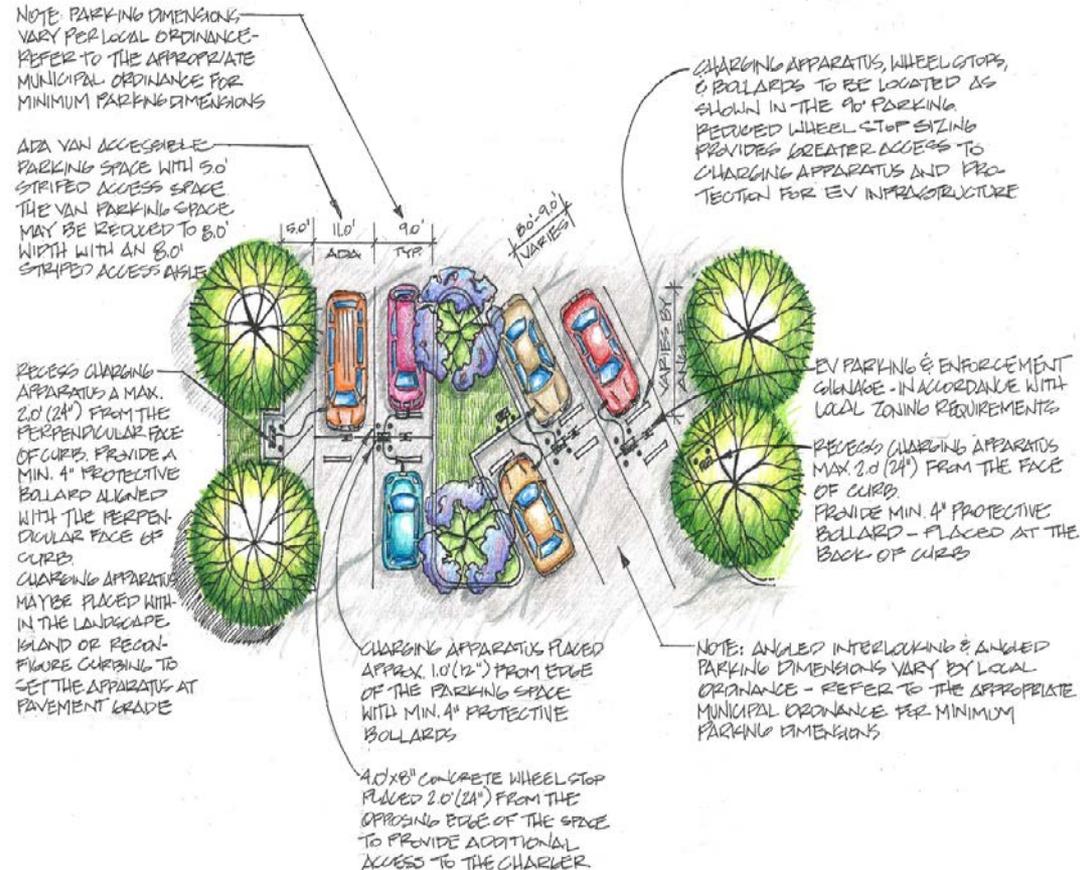


Deliverables/Products completed:

- **Richmond Electric Vehicle Initiative Readiness Plan**



"Business Case for Electric Vehicle Charging Stations," ended with Mayor Dwight C. Jones plugging in an electric Ford Focus at the Omni Hotel in Richmond.

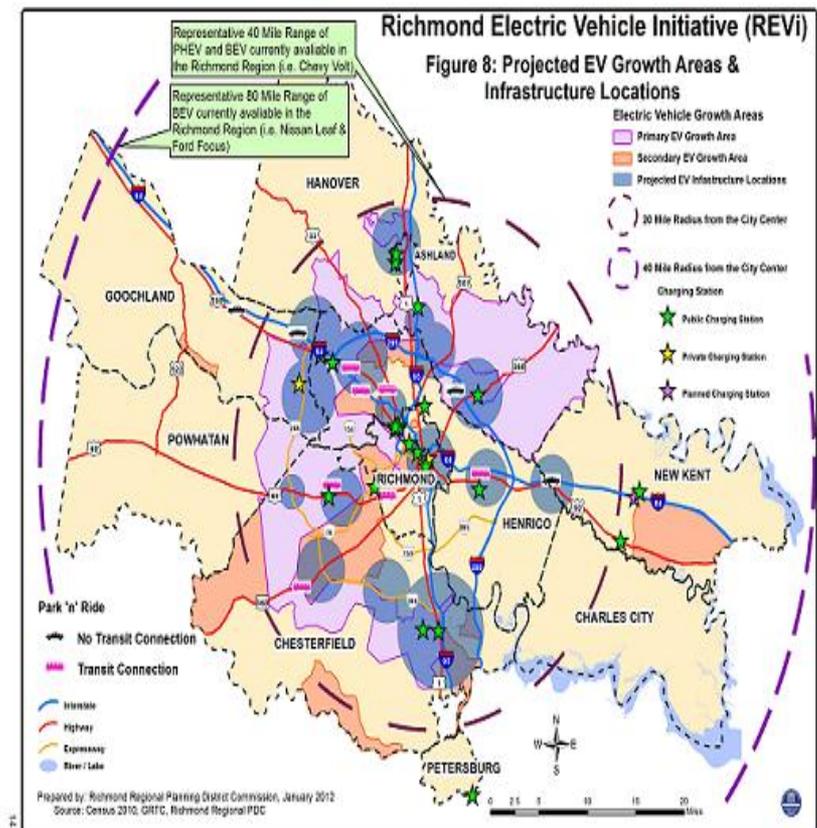
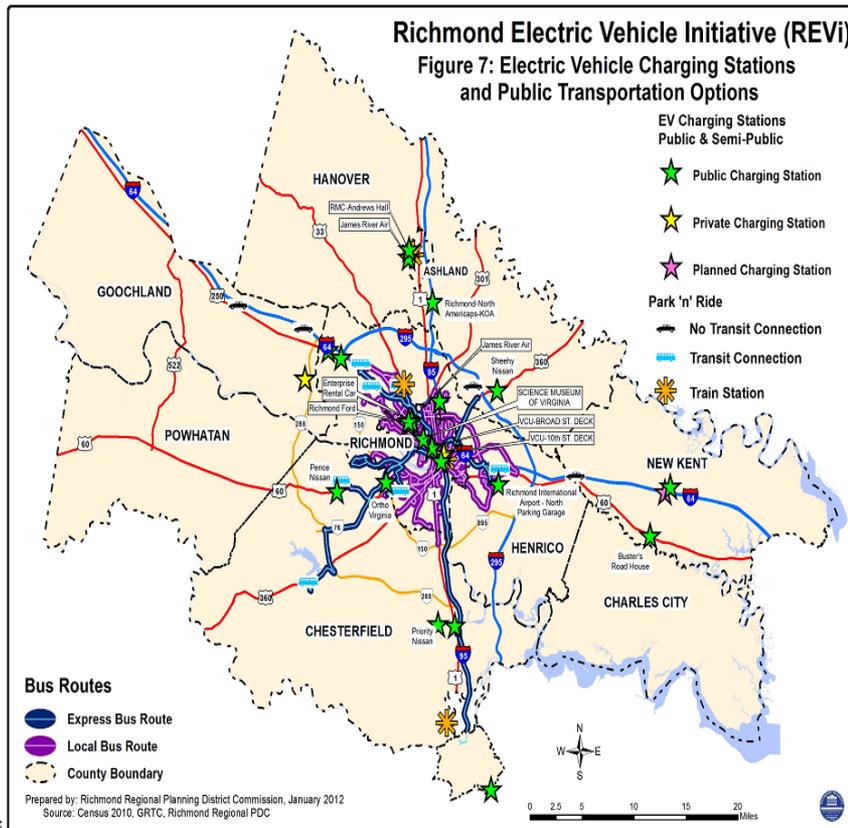


TECHNICAL ACCOMPLISHMENTS

Richmond Electric Vehicle Initiative (REVi)



- Planning, Zoning and Development Guidelines
- Case study/planning analysis to project primary and secondary growth areas for EV adoption and infrastructure



TECHNICAL ACCOMPLISHMENTS

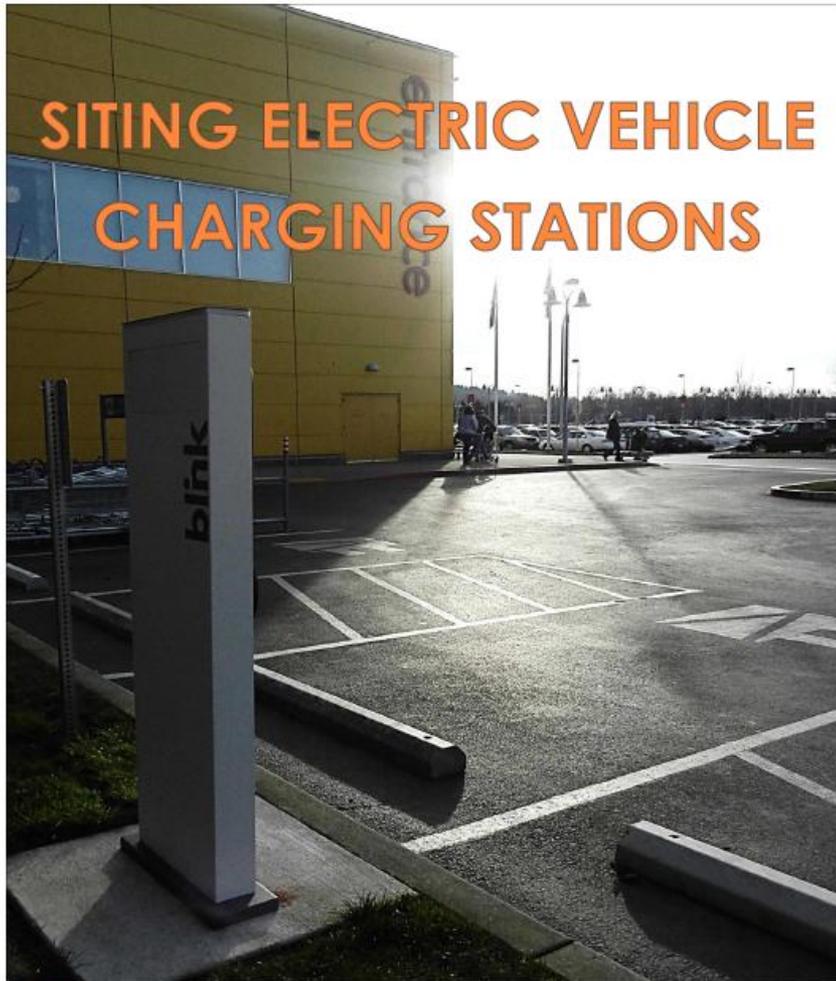
Richmond Electric Vehicle Initiative (REVi)



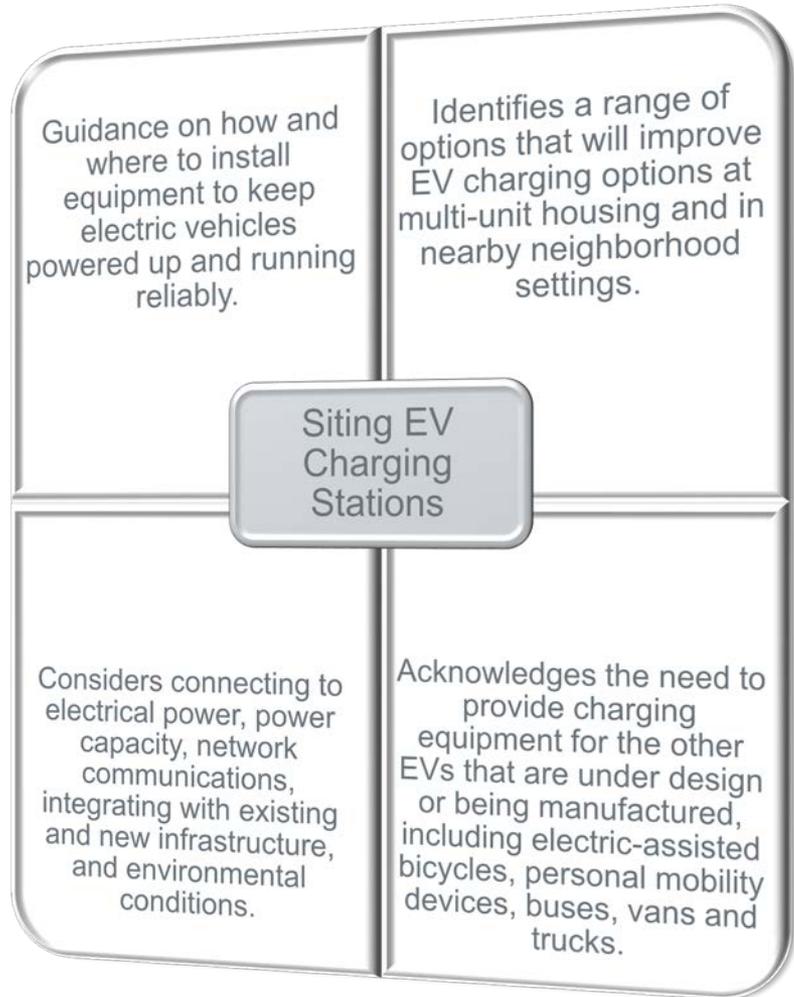
- Regional EV Signage Package
- EV Infrastructure Siting and Installation Checklist
- Accessed policies and incentives in support of EV adoption (Federal, State and Local)
- Building Permit Recommendations
- Ordinance and Development Guidelines
- EVSE Layout Recommendations
- Plans for EV Infrastructure Deployment
- Signage Guidelines and Recommendations
- EVSE Installation Checklist
- Policy Recommendations

TECHNICAL ACCOMPLISHMENTS

Richmond Electric Vehicle Initiative (REVi)

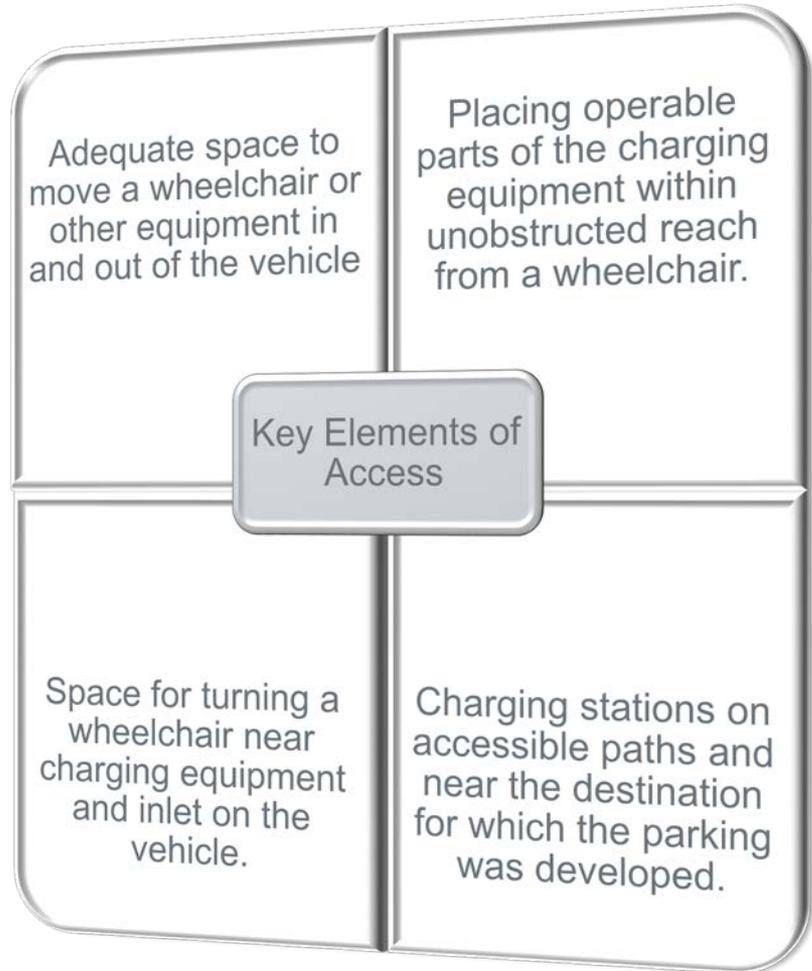


SITING ELECTRIC VEHICLE CHARGING STATIONS



TECHNICAL ACCOMPLISHMENTS

Richmond Electric Vehicle Initiative (REVi)



COLLABORATIONS

Richmond Electric Vehicle Initiative (REVi)



- Clean Cities Coalitions
 - Virginia Clean Cities
- Other Institutions
 - The Richmond Regional Planning District Commission
 - J.Sargeant Reynolds Community College
 - Dominion Virginia Power
 - Sustainable Transportation Initiative of Richmond
 - Over 50 additional collaborators
- State Energy Offices
 - DMME
- Local Governments
 - City of Richmond
 - Counties of Chesterfield, Charles City, Goochland, Hanover, Henrico, New Kent, Powhatan
 - Town of Ashland



J. Sargeant Reynolds
Community College



The Richmond Electric Vehicle Initiative (REVi) is advancing the Richmond Region as an attractive and sustainable market for electric vehicle technology.

- **Relevance:** REVi is easing the market introduction of alternative fuels and new electric drive vehicle technologies through voluntary efforts in partnership with local communities/
- **Approach:** Outreach; Integrate EV policy & deployment scenarios in regional long range transportation plans
- **Project Accomplishments:** Richmond Electric Vehicle Initiative Readiness Plan

PROPOSED FUTURE WORK

Richmond Electric Vehicle Initiative (REVi)



- Remaining Project Activities
 - Participate in EV Planning Project Workshop (5/1/13, Knoxville, TN)
- Continued Technical Assistance available from Clean Cities Program
- Additional Outreach and Education events
- Work with VDOT on signage implementation
- Work with localities on zoning guidelines